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SWERNOFSKY LAW GROUP PC
P.O. BOX 390013
MOUNTAIN VIEW, CA 94039-0013

EXAMINER

LE, MIRANDA

ART UNIT PAPER NUMBER

2167

DATE MAILED: 09/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/693,326

Applicant(s)

LEWIS ET AL.

Examiner

Miranda Le

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 22-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 22-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This communication is responsive to Amendment filed 07/21/06.

Claims 1-11, 22-45 are pending in this application. Claims 1, 24, 35 are independent claims. In the Amendment, claims 1, 5, 7, 9-11, 24, 32, 35, 43 have been amended. This action is made Final.

2. The rejection of claims 1-11, 22-45 by 35 U.S.C. §101 has been withdrawn in view of the amendment.

3. The rejection of claims 1, 24, 35 by 35 U.S.C. §112 second paragraph has been withdrawn in view of the amendment.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 2, 4, 7, 8, 10, 24, 25, 27, 30, 31, 33, 35, 36, 38, 41, 42, 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nazari (US Patent 6,405,201), in view of Pothapragada

et al. (US Patent No. 6,442,682), and further in view of Hamilton et al. (US Patent No. 6,701,420).

As to claims 1, 24, 35, Nazari teaches a computerized method of managing a file system for a file server, comprising:

receiving a file operation that signals a reservation operation for a file of the file system, the file having a file size (*i.e. a request to append additional data to file, col. 5, lines 32-44*) (*col. 5, lines 19-65*);

computing a first number of blocks (*i.e. block-size units, col. 5, lines 19-32*) needed to accommodate the file size (*i.e. the system determines if there is sufficient space allocated for file within storage device to accommodate the additional data to the file, col. 5, lines 56-65*) (*col. 5, line 66 to col. 6, line 59*);

a second number of blocks already allocated for the file (*i.e. a file length value stored locally in client 102, col. 5, line 66 to col. 6, line 10*);

a fourth number of unallocated blocks to be reserved to accommodate the file size (*i.e. If sufficient space has not been allocated to accommodate the additional data on the remote file server, col. 1, line 63 to col. 2, line 16*).

Nazari does not expressly teach a third number of delayed allocated blocks for the file. Pothapragada teaches a third number of delayed allocated blocks for the file (*i.e. delayed block allocation, col. 2, line 59 to col. 3, line 7*).

It would have been obvious to one of ordinary skill of the art having the teaching of Nazari and Pothapragada at the time the invention was made to modify the system of Nazari and Pothapragada to include the above limitations as taught by Pothapragada. One of ordinary skill

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in the art would be motivated to make this combination in order to access speed of data in servers in view of Pothapragada, as doing so would give the added benefit of allowing a user to tune the operation of the file system as well as get intelligent information from the file system on his data characteristics as taught by Pothapragada (*col. 3, lines 8-24*).

Nazari, Pothapragada do not specifically teach the step of subtracting.

Hamilton teaches the step of subtracting (*col. 24, lines 22-44*).

It would have been obvious to one of ordinary skill of the art having the teaching of Nazari, Pothapragada and Hamilton at the time the invention was made to modify the system of Nazari, Pothapragada to include the above limitations as taught by Hamilton. One of ordinary skill in the art would be motivated to make this combination in order to free the allocated region of memory without returning the allocated region of the memory pool to system memory; and perform allocating memory to store display lists in response to an allocation request in a computer system, without returning the allocated region that does not include display list data to the operating system in view of Hamilton, as doing so would give the added benefit of having the size of the memory required to manage the memory blocks is minimal (*col. 6, lines 47-50*).

As to claims 2, 25, 36, Pothapragada teaches the file system uses write anywhere file system layout (*col. 2, line 59 to col. 3, line 7*).

As to claims 4, 27, 38 Nazari teaches the file operation that signals the reservation operation includes a parameter that specifies the file size (*col. 5, lines 19-65*).

As to claim 7, 30, 41, Nazari teaches the step of checking that a number of available blocks in the file system is greater than the fourth number of blocks, wherein an error is returned in a case that the number of available blocks is less than the fourth number of blocks (*col. 5, lines 19-65*).

As to claim 8, 31, 42, Nazari teaches a number of allocated blocks, and a number of reserved blocks from a total number of blocks in the file system, and adding a number of reserved cached unallocated blocks (*col. 5, line 19 to col. 6, line 59*);

Pothapragada teaches a number of cached unallocated blocks (*col. 2, line 59 to col. 3, line 7*);

Hamilton teaches the number of available blocks in the file system is determined by subtracting (*col. 24, lines 22-44*).

As to claims 10, 33, 44, Nazari teaches the step of releasing reservation of blocks as blocks are written to storage (*col. 5, line 19 to col. 6, line 59*).

6. Claims 3, 26, 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nazari (US Patent 6,405,201), in view of Pothapragada et al. (US Patent No. 6,442,682), in view of Hamilton et al. (US Patent No. 6,701,420), and further in view of Keller et al. (US Patent No. 6,473,849).

As to claims 3, 26, 37, Nazari, Pothapragada and Hamilton do not teach the file operation that signals the reservation is a zero length write request.

However, Keller teaches the file operation that signals the reservation is a zero length write request (*col. 12, lines 25-54*).

It would have been obvious to one of ordinary skill of the art having the teaching of Nazari, Pothapragada, Hamilton and Keller at the time the invention was made to modify the system of Nazari, Pothapragada and Hamilton to include the file operation that signals the reservation is a zero length write request as taught by Keller. One of ordinary skill in the art would be motivated to make this combination in order to generate a lock request in view of Keller, as doing so would give the added benefit of allowing for proper synchronization of lock operations within the distributed memory architecture as taught by Keller (*col. 12, lines 25-54*).

7. Claims 5, 28, 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nazari (US Patent 6,405,201), in view of Pothapragada et al. (US Patent No. 6,442,682), in view of Hamilton et al. (US Patent No. 6,701,420), and further in view of Bereznyi et al. (US Patent No. 6,453,404).

As to claims 5, 28, 39, Nazari, Pothapragada and Hamilton do not teach specifically determining a total number of direct and indirect blocks needed to accommodate the file size.

However, Bereznyi teaches determining a total number of direct and indirect blocks needed to accommodate the file size (*Figs. 16, 17*).

It would have been obvious to one of ordinary skill of the art having the teaching of Nazari, Pothapragada, Hamilton and Bereznyi at the time the invention was made to modify the system of Nazari, Pothapragada and Hamilton to include determining a total number of direct and indirect blocks needed to accommodate the file size as taught by Bereznyi. One of ordinary

skill in the art would be motivated to make this combination in order to allocate an additional memory portion such that the total amount of memory allocated is sufficient to meet the first allocation request in view of Bereznyi, as doing so would give the added benefit of obtaining a distributed data cache whose memory can be allocated in accordance with a memory allocation model as taught by Bereznyi (*col. 1, lines 5-9; col. 1, lines 45-63*).

8. Claims 6, 29, 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nazari (US Patent 6,405,201), in view of Pothapragada et al. (US Patent No. 6,442,682), in view of Hamilton et al. (US Patent No. 6,701,420), and further in view of Crow et al (US Patent No. 6,895,418).

As to claims 6, 29, 40, Nazari, Pothapragada and Hamilton do not explicitly teach setting a flag in an inode for the file that indicates blocks have been reserved for the file.

However, Crow teaches setting a flag in an inode for the file that indicates blocks have been reserved for the file (*col. 4, line 19-65*).

It would have been obvious to one of ordinary skill of the art having the teaching of Nazari, Pothapragada, Hamilton and Crow at the time the invention was made to modify the system of Nazari, Pothapragada and Hamilton to include setting a flag in an inode for the file that indicates blocks have been reserved for the file as taught by Crow. One of ordinary skill in the art would be motivated to make this combination in order to use at least one inode for accessing file segments in storage device in view of Crow, as doing so would give the added benefit of writing extents to an inode assigned to the file as taught by Crow (*col. 2, lines 3-19*).

9. Claims 9, 32, 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nazari (US Patent 6,405,201), in view of Pothapragada et al. (US Patent No. 6,442,682), in view of Hamilton et al. (US Patent No. 6,701,420), and further in view of Schmuck et al. (US Patent/Pub No. 5,956,734).

As to claims 9, 32, 43, Nazari, Pothapragada and Hamilton do not explicitly teach the step of checking that the third number of blocks does not exceed a remainder of a quota for an owner of the file, wherein an error is returned in a case that the third number of blocks exceeds the remainder of the quota, wherein the fifth number of blocks comprises a difference between the first number of blocks and the second number of blocks.

However, Schmuck teaches the step of checking that the third number of blocks does not exceed a remainder of a quota for an owner of the file, wherein an error is returned in a case that the third number of blocks exceeds the remainder of the quota, wherein the fifth number of blocks comprises a difference between the first number of blocks and the second number of blocks (*col. 4, line 63 to col. 5, line 9*).

It would have been obvious to one of ordinary skill of the art having the teaching of Nazari, Pothapragada, Hamilton and Schmuck at the time the invention was made to modify the system of Nazari, Pothapragada and Hamilton to include the step of checking that the third number of blocks does not exceed a remainder of a quota for an owner of the file, wherein an error is returned in a case that the third number of blocks exceeds the remainder of the quota, wherein the fifth number of blocks comprises a difference between the first number of blocks and the second number of blocks as taught by Schmuck. One of ordinary skill in the art would be motivated to make this combination in order to use the concept in our parallel file system in

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view of Schmuck, as doing so would give the added benefit of providing immediate recovery in many situations where sufficient quota exists at the time of the failure as taught by Schmuck (*col. 4, line 63 to col. 5, line 9*).

10. Claims 11, 22, 23, 34, 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nazari (US Patent 6,405,201), in view of Pothapragada et al. (US Patent No. 6,442,682), in view of Hamilton et al. (US Patent No. 6,701,420), and further in view of Bonwick (US Patent No. 6,725,244).

As to claims 11, 34, 45, Nazari, Pothapragada and Hamilton do not teach the step of decrementing the number of a reserved unallocated blocks by a number of released blocks.

However, Bonwick teaches the step of decrementing the number of a reserved unallocated blocks by a number of released blocks (*col. 6, line 43 to col. 7, line 15*).

It would have been obvious to one of ordinary skill of the art having the teaching of Nazari, Pothapragada, Hamilton and Bonwick at the time the invention was made to modify the system of Nazari, Pothapragada and Hamilton to include the step of decrementing the number of a reserved unallocated blocks by a number of released blocks as taught by Bonwick. One of ordinary skill in the art would be motivated to make this combination in order to determine whether special treatment is to be performed on the write data of Bonwick, as doing so would give the added benefit of having appropriate file descriptors allocated which can in general be located (i.e., via searching) much more efficiently than conventionally achieved as taught by Bonwick (*col. 2, lines 7-59*).

As per claim 22, Pothapragada teaches caching one or more blocks of the file in a buffer (col. 6, lines 32-42);

Nazari teaches writing the one or more blocks to storage (*col. 5, line 19 to col. 6, line 59*).

Nazari, Pothapragada and Hamilton do not teach decrementing the number of unallocated blocks by the number of blocks written to the storage.

Bonwick teaches the step of decrementing the number of a reserved unallocated blocks by a number of released blocks (*col. 6, line 43 to col. 7, line 15*).

It would have been obvious to one of ordinary skill of the art having the teaching of Nazari, Pothapragada, Hamilton and Bonwick at the time the invention was made to modify the system of Nazari, Pothapragada and Hamilton to include the step of decrementing the number of a reserved unallocated blocks by a number of released blocks as taught by Bonwick. One of ordinary skill in the art would be motivated to make this combination in order to allocating a file descriptor in view of Bonwick, as doing so would give the added benefit of having appropriate file descriptors allocated which can in general be located (i.e., via searching) much more efficiently than conventionally achieved as taught by Bonwick (*col. 2, lines 7-59*).

As per claim 23, Pothapragada teaches comprising setting a caching flag for each block cached in the buffer (*col. 7, lines 31-43*).

Response to Arguments

11. Applicant's arguments with respect to claims 1-11, 22-45 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Miranda Le whose telephone number is (571) 272-4112. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Cottingham, can be reached on (571) 272-7079. The fax number to this Art Unit is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Miranda Le
September 18, 2006



JOHN COTTINGHAM
SUPERVISORY PATENT EXAMINER
ELECTRONIC BUSINESS CENTER 2100